

REMARKS

In response to the Office Action mailed on October 24, 2003, Applicants respectfully request reconsideration. To further the prosecution of this Application, Applicants submit the following amendments as well as remarks discussing patentability of rejected and newly added claims.

Claims 1-27 were previously pending in the subject Application. Claims 28-35 are being added by way of this amendment. Thus, after entry of this Amendment, claims 1-35 will be pending. No new matter was added to the application when adding these claims.

The following remarks address the rejections of claims 1-27 as set out in the present Office Action and patentability of newly added claims 28-35. Applicants respectfully request reconsideration.

Rejection of Originally Submitted Claim 1-27 under 35 U.S.C. § 102(e)

The Examiner has rejected originally submitted claim 1 under 35 U.S.C. § 102(e) as being anticipated by Rangachar (U.S. Patent 6,301,252). The Office Action likens elements in Rangachar to those in claim 1 to reject the claimed invention.

In general, Rangachar discloses a network of switch devices that each receives generic commands from a network manager over a network. Each switch device includes a vendor specific command interface to convert the received generic commands into vendor specific commands understood by a corresponding switching unit of the switch device. The switch devices use the self-generated vendor specific commands to its control corresponding operational functions. Based on this technique, the network manager need not be concerned whether a switch device can interpret a command because each switch device includes a vendor specific command interface to convert received

commands into an understandable form. It is important to note that the system disclosed in Ranagachar transmits generic commands over a network to individual switch devices that perform the translation. These teachings are contrary to the invention in which a network management workstation converts the generic command into one or multiple different vendor specific commands that are transmitted over a network to corresponding switches.

A brief description of problems associated with conventional zoning techniques will help to illustrate distinctions as well as advantages of embodiments of the invention over the prior art. These were discussed in the summary section of the subject application and are again discussed below.

Though zoning is a common characteristic in storage network equipment (e.g., data switches) made by different manufacturers, the commands and interfaces used to control zoning within a particular manufacturers equipment are often specific to that manufacturer. In other words, to control a remotely located switch device, one must generate and transmit specific commands understood by only the corresponding vendor specific device. As an example, commands used to control zoning within a data switch for use in storage networks manufactured by IBM Corporation might differ from commands used to control zoning within a data switch for use in storage networks manufactured by EMC Corporation. Other data storage network manufacturers and vendors such as Brocade Communications Incorporated, Hitachi, Mercury Computer Systems, and the like each provide a set of zoning control and configuration commands that differ from each other.

Zoning control commands are typically implemented within vendor supplied and vendor specific management software applications. Such conventional zoning control and management applications cannot control zoning in devices manufactured by other vendors. This may be problematic if a

customer desires to use storage network equipment made by different manufacturers within the same storage network.

According to one embodiment of the invention, a method is provided for controlling zoning within a device such as a switch. The method comprises the steps of receiving a generic zone control command, translating (i.e., either directly calling or mapping and then calling) the generic zone control command to at least one vendor specific device command of a plurality of vendor specific device commands that respectively control zoning in a plurality of different vendor devices, and performing (e.g., executing) the at least one vendor device command to control zoning in a device. Since the generic zone control command is translated to one or more vendor device commands chosen from a database of vendor device commands (e.g., vendor command sets) that can control zoning in devices from different vendors, the method allows a single mechanism, such as a management application that incorporates the method, to be used to control zoning in many different devices from many different vendors in the same network, such as a data storage network.

Note that, in contradistinction to the present invention, Rangachar discloses a method of including a vendor specific command interface for each switch in a corresponding network. Thus, the network manager in Rangachar sends generic commands to each switch device, which converts the commands accordingly. The switch device bears the burden of converting received commands.

According to embodiments of the present invention, a network manager translates generic zone commands into vendor specific type of commands depending on a corresponding vendor device to which the command pertains. Thus, the network manager bears the burden of translating commands before sending them to a corresponding specific type of switch device.

Claim 1 includes distinguishing limitations over the cited prior art. For example, claim 1 recites a step of “translating the generic zone control command to at least one vendor specific device command of a plurality of vendor specific device commands that respectively control zoning in a plurality of different vendor devices.” Applicants respectfully submit that none of the cited references teaches or suggests this aspect of the invention. For example, none of the references teaches or suggests translating a zone control command into “at least one ... of a plurality of vendor specific device command” to control zoning in a plurality of different vendor devices. More specifically, Rangachar discloses converting commands into only one specific vendor type via a corresponding vendor specific command interface for controlling a corresponding single vendor type of switch. According to the claimed invention, the method includes translating the generic zone control command to control zoning in a plurality of devices. Also, Rangachar discloses a technique of translating commands into a single vendor type, not multiple vendor types as in the claimed invention. Thus, Rangachar does not teach or suggest every limitation as in claim 1.

The claimed invention is advantageous because a single network manager can translate a generic zone control command into a plurality of different vendor specific commands to control each of multiple different types of vendor specific devices. Providing capability for a localized zone control management translation function as in the claimed invention eliminates the need to convert generic commands at corresponding different vendor switch devices. In other words, the claimed invention solves a problem in Rangachar, which is the burden of including a vendor specific command interface at each switch device. Maintenance (e.g., software updates, physical circuitry, etc.) of the vendor specific command interface at each switch device makes Rangachar a more complex system to implement. The claimed invention controls multiple different vendor devices rather than only a single switch device.

For the reasons stated above, Applicants submit that claim 1 is patentably distinct and advantageous over the cited prior art, and the rejection of claim 1 under 35 U.S.C. §102(b) should be withdrawn. Accordingly, allowance of claim 1 is respectfully requested. If the rejection of claim 1 is to be maintained, Applicants respectfully request that it be pointed out with particularity where the cited prior art discloses a technique of translating the generic zone control command to control zoning in a plurality of different vendor devices as recited in claim 1.

Because claims 2-11 depend from and further limit claim 1, Applicants submit that claims 2-11 are also in allowable condition.

Applicants respectfully submit that claim 12 includes similar patentable distinctions over the cited prior art as claim 1. Thus, Applicants respectfully request allowance of claim 12 and corresponding dependent claims 13-18.

Applicants respectfully submit that claim 24 and 27 includes similar patentable distinctions over the cited prior art as claim 1. Thus, Applicants respectfully request allowance of claim 24 and corresponding dependent claims 25-26 as well as claim 27.

Applicants would like to point out that rejected dependent claims further distinguish the invention as in claims 1 and 12 over the cited prior art. Specifically, dependent claims 2 and 13 recite steps of: "identifying a vendor of at least one device within a zone corresponding to the generic zone control command; and selecting a set of vendor specific device commands, from the plurality of vendor specific device commands that respectively control zoning in devices from different vendors, that corresponds to the vendor of at least one device within the zone." Applicants respectfully submit that claim 2 further

distinguishes the invention as in claim 1 over the prior art. For example, note that generic commands received by a corresponding vendor specific command interface in Rangachar are presumed to be associated with the corresponding switch device receiving the command. Thus, there is no identifying or selecting as recited in the claimed invention. More specifically, Rangachar recites at column 6 lines 43-45 (as cited by the Examiner) that a generic command can be understood by any of the switches. This is because each switch device includes an appropriate translator (i.e., vendor specific command interface). Thus, the Office Action does not make a prima facie case that claim 2 lacks novelty over the prior art. If the rejection of claim 2 is to be maintained, Applicants respectfully request that it be pointed out with particularity where the cited prior art discloses a technique of identifying a vendor as recited in claim 2. Applicants respectfully request allowance of allowance of claim 2 as well as claim 13.

Dependent claims 3 and 14 recite: "wherein the step of selecting a set of vendor specific device commands selects the set of vendor specific device commands that are specific to a vendor of a device that exists within the zone to which the generic zone control command is directed." Applicants respectfully submit that claim 3 further distinguishes the invention as in claim 2 over the prior art. For example, generic commands received by a corresponding vendor specific command interface in Rangachar are presumed to be associated with the corresponding switch device receiving the command. Thus, there is no selecting a set of vendor specific commands as recited in the claimed invention. More specifically, Rangachar recites at column 6 lines 31-36 (as recited by the Office Action) that each switch has a vendor specific command interface to provide translation of generic commands. This passage in Rangachar has nothing to do with selecting a set of vendor commands. Instead, the passage is a mere statement that each switch device in Rangachar has its own translator. The recited passage and the reference in general teaches away from the present invention since there would be no need to select a set of vendor specific

commands. Thus, the Office Action does not make a prima facie case that claim 3 lacks novelty over the prior art. If the rejection of claim 3 and 13 is to be maintained, Applicants respectfully request that it be pointed out with particularity where the cited prior art discloses the a technique of selecting the set of vendor specific commands as recited in claim 3. Applicants respectfully request allowance of allowance of claim 3 as well as claim 13.

Dependent claims 4 and 15 recite: "identifying vendors of the devices within the zone that are affected by the generic zone control command." Applicants respectfully submit that claim 4 further distinguishes the invention as in claim 2 over the prior art. For example, there is no need in Rangachar to identify vendors of the devices to which the generic commands are transmitted because each switch device in Rangachar includes a corresponding translator. Why would the network manager in Rangachar need to know a vendor type of a switch device to which the command is transmitted? This is the problem that Rangachar solves, which is to design a system so that a network manager does not need to identify a vendor type which the generic command is sent. Thus, there is no "identifying vendors of the devices" in Rangachar and the Office Action does not make a prima facie case that claim 4 lacks novelty over the prior art. If the rejection of claim 4 and 15 is to be maintained, Applicants respectfully request that it be pointed out with particularity where the cited prior art discloses the a technique of identifying vendors of the devices within the zone that are affected by the generic zone control command as recited in claim 4. Applicants respectfully request allowance of allowance of claim 4 as well as claim 15.

Dependent claims 7 and 18 recite: "wherein the set of vendor specific device commands is selected based on an identity of a vendor of the device to which the generic zone control command is directed." For similar reasons as discussed above, Applicants respectfully submit that claim 7 further distinguishes the invention as in claim 5 over the prior art. For example, there is no need in

Rangachar to select a vendor specific command based on an identified vendors of the devices to which the generic commands is transmitted because each switch device includes a corresponding translator for only one vendor type of switch device. The switch devices or network manager do not need to select the set of vendor specific commands. The switch devices each include a vendor specific command interface that translates generic commands into a predetermined, specific type of commands. If the rejection of claim 7 and 18 is to be maintained, Applicants respectfully request that it be pointed out with particularity where the cited prior art discloses the recited technique in claim 7. Applicants respectfully request allowance of allowance of claim 7 as well as claim 18.

Dependent claims 10 and 22 recite: "loading a library of vendor specific device commands into a management application based on an identity of a vendor of a device affected by the generic zone control command; and calling the at least one vendor specific device command using the generic zone control command having the same format as the at least one vendor specific device command perform zoning operations within the device affected by the generic zone control command." Applicants respectfully submit that claim 10 further distinguishes the invention as in claim 1 over the prior art. For example, there is no need in Rangachar to load a library of vendor specific device commands at the network manager 22 or switch device based on identity of the vendor type of switch. First, the network manager in Rangachar transmits generic commands so there is no need to load a device library of vendor specific commands. Second, the switch devices in Rangachar do not load a library of vendor specific commands based on an identity of a vendor of a corresponding switch device. Each vendor specific command interface only supports one type of vendor switch. Why would the vendor switch device or network manager in Rangachar need to load a library of vendor specific commands based on an identity of a vendor of a corresponding switch device? Rangachar alleviates the network

manager from having to translate the generic command because each of the switch device includes a vendor specific command interface to perform translation. Thus, the network manager does not need to load a library. Nor do the switch devices need to determine the identity of a corresponding switch device. More specifically, there is no indication in Ranagachar that the switch devices know that they are different than another type of vendor specific switch in the network. The vendor specific command interface, as its name suggests, only supports translation of commands for one specific type of vendor. Thus, there is no "loading a library of vendor specific device commands into a management application based on an identity of a vendor of a device affected by the generic zone control command." If the rejection of claim 10 and 22 is to be maintained, Applicants respectfully request that it be pointed out with particularity where the cited prior art discloses the recited technique in claim 10. Allowance of the claim 10 as well as claim 22 is respectfully requested.

Patentability of New claims 28-35

Newly submitted claim 28 depends from claim 1 and includes the limitation of "wherein the steps of receiving, translating and performing are executed by a management application that controls zoning within switches by transmitting the at least one vendor specific device command over a network to a corresponding at least one vendor specific switch device." Support for this new claim can be found in Fig. 3, text at page 5 line 19 to page 20 line 6, and elsewhere throughout the specification.

In contradistinction to the cited prior art references, the claimed invention involves transmitting the at least one vendor specific command generated by the management application over a network to a corresponding at least one switch device. Rangachar discloses transmitting the generic command over the network to the corresponding switch devices. Thus, the invention as in claim 28

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is distinguished over the cited prior art. Applicants also respectfully request allowance of dependent claim 28.

Newly submitted claim 29 depends from claim 28 and includes the limitation of “wherein the management application receives the generic zone control command and, in response, generates i) a corresponding first vendor specific command for transmission to a first vendor switch device type, and ii) a corresponding second vendor specific command for transmission to a second vendor switch device type.” Support for this new claim can be found in Fig. 3, text at page 19 line 10 to page 20 line 21, and elsewhere throughout the specification.

In contradistinction to the cited prior art references, the claimed invention involves translating the generic control command into two different types of vendor specific commands that are transmitted over a network to respective switches. Rangachar discloses transmitting the generic command over the network to the corresponding switch devices, not the vendor specific commands. Also, Rangachar does not teach or suggest translating a generic command into two different vendor specific commands sent to two different vendor types of switches. Thus, the invention as in claim 29 is distinguished over the cited prior art. Applicants also respectfully request allowance of dependent claim 29.

Newly submitted claim 30 depends from claim 29 and includes the limitation of “wherein both the first vendor specific command and the second vendor specific command pertain to a common zoning function supported by a first switch device and a second switch device to which the first vendor specific command and the second vendor specific command are transmitted.” Support for this new claim can be found in Fig. 3, text at page 19 line 10 to page 20 line 21, and elsewhere throughout the specification.

In contradistinction to the cited prior art references, both the first vendor specific command and the second vendor specific command pertain to a common zoning function. Rangachar does not teach or suggest transmitting different vendor specific commands to corresponding different vendor specific switch devices for a common zoning function. Thus, the invention as in claim 30 is distinguished over the cited prior art. Applicants also respectfully request allowance of dependent claim 30.

Newly submitted claim 31 depends from claim 30 and includes the limitation of "identifying that there is no need to map the generic zone control command to corresponding at least one vendor specific device commands; and utilizing the generic zone control command to carry out zone control operations." Support for this new claim can be found in Fig. 1, text at page 14 line 1 to 10, and elsewhere throughout the specification.

In contradistinction to the cited prior art references, the claimed invention recites identifying, from the network manager's perspective, whether to translate a generic command into a vendor specific command and transmit the commands over a network to the different types of vendor switches. The network manager in Rangachar does not perform this operation but instead transmits generic commands to the switch devices regardless of the type of command. Thus, claim 31 is distinguished over the cited prior art. Applicants respectfully request allowance of dependent claim 31.

Newly submitted claims 32-35 include similar limitations as the previous claims. Applicants also respectfully request allowance of these claims.

CONCLUSION

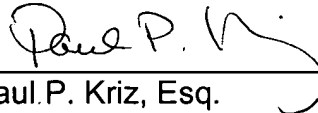
In view of the foregoing remarks, Applicants submit that the pending claims as well as newly added claims are in condition for allowance. A Notice to

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this affect is respectfully requested. If the Examiner believes, after reviewing this Response, that the pending claims are not in condition for allowance, the Examiner is respectfully requested to call the Representative.

Applicants hereby petition for any extension of time which is required to maintain the pendency of this case. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50-0901.

Respectfully submitted,



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